

foreign material filling the fissure reflecting light less perfectly than the general surface of the berg. I conceive that the upper surface of one of these great tabular southern icebergs, including by far the greater part of its bulk, and culminating in the portion exposed above the surface of the sea, was formed by the piling up of successive layers of snow during the period, amounting perhaps to several centuries, during which the ice-cap was slowly forcing itself over the low land and out to sea over a long extent of gentle slope, until it reached a depth considerably above 200 fathoms, when the lower specific weight of the ice caused an upward strain which at length overcame the cohesion of the mass, and portions were rent off and floated away. If this be the true history of the formation of these icebergs, the absence of all land débris in the portion exposed above the surface of the sea is readily understood. If any such exist, it must be confined to the lower part of the berg, to that part which has at one time or other moved on the floor of the ice-cap.

The icebergs, when they are first dispersed, float in from 200 to 250 fathoms. When, therefore, they have been drifted to latitudes of 65° or 64° S., the bottom of the berg just reaches the layer at which the temperature of the water is distinctly rising, and it is rapidly melted, and the mud and pebbles with which it is more or less charged are precipitated. That this precipitation takes place all over the area where the icebergs are breaking up constantly, and to a considerable extent, is evident from the fact of the soundings being entirely composed of such deposits; for the diatoms, Globigerina, and radiolarians are present on the surface in large numbers; and unless the deposit from the ice were abundant it would soon be covered and masked by a layer of the exuviae of surface organisms.

SCIENTIFIC SERIALS

Poggendorff's Annalen der Physik und Chemie, No. 6.—The first paper, by G. Lundquist, On the reflection of light from the outside of isotropic bodies, is reprinted from the "Transactions" of the Royal Society of Upsala.—Dr. H. Brougersma contributes a memoir On the Medium in electrical influence, in which, following up the experiments of Riess, he examines Faraday's theory of electrical induction by polarisation of the medium, and describes in detail the apparatus with which he experimented, tabulates his results, and agrees with Riess's induction as to a direct influx of electricity.—The next article comprises a series of communications from the Mineralogical Institute of the University of Strasburg, in which Paul Groth treats of the crystalline form and thermo-electric properties of smaltine or arsenical cobalt. Its chemical formula is very variable, $R = (Co, Ni, Fe) As_2$. Eight samples from different localities, which contribute a better knowledge of the hemihedral forms of the species, are discussed. He concludes that some of the forms hitherto regarded as holohedral are hemihedral forms with parallel sides. As with iron pyrites and cobalt-glance, with which it is isomorphous, one part of the crystal is negative towards copper, while the other half is positive.—Dr. Hintze treats of the chemical composition of leadhillite. Prof. Laspeyres two years ago described a mineral from Iglesias, in Sardinia, under the name of maxite, of which the formula was $5PbSO_4 + 9PbCO_3 + 4PbO + 5H_2O$. M. Bertrand, of Paris, soon after published an account of leadhillite from the same neighbourhood. The author proves that the two minerals are identical, and that the formula of leadhillite is not $PbSO_4 + 3PbCO_3$ as hitherto believed, but $2PbSO_4 + 4PbCO_3 + PbO + 2H_2O$. The next paper, by the same author, is crystallographic researches on the combination of aldehyde with the aromatic hydrocarbons. The chemical composition and crystal-line forms are given of ditolyltrichloroethan, diphenyltrichloroethan, diphenyltrichloroethenyl, diphenylbromochloroethan, dimonobromophenyltrichloroethan, &c. All these bodies belong to the monoclinic system.—Dr. A. Arzurini gives a short note on twin-growth in willemite. The next paper by the same author is "Optical researches on the turpentineolhydrates," which he follows by crystallographic and optical researches on compounds of urea. His last paper is on two isomorphous substances derived from benzol.—F. Zolner prints his important paper on the aggregation and position of the sun-spots, and concludes that they are cooled scorpiaceous products.—Dr. Karl Braun contributes studies on the earth's magnetism.—Among the reprinted papers are Dr. Andrews' on ozone and Prof. Wright's on the polarisation of the zodiacal light.

Memorie della Società Spettroscopisti Italiani, September 1874.—This number contains a paper by Mr. J. N. Lockyer, describing certain phenomena seen when examining the spectrum of the electric light through a mass of sodium vapour in a tube. When this is done, the sodium lines are seen to shade gradually off, sometimes on one side, sometimes on both, the boundary of the shading being curved and sometimes limited by a bright line.—There is also another paper by the same author, On experiments on the absorption of a great thickness of sodium and iodine vapour in a tube 5 ft. long. After mentioning that it had been hitherto assumed that a great thickness of gas causes its radiation, and therefore its absorption, to become more continuous, he states that, on generalising his work, it appears that when the density of a vapour is increased, a continuous spectrum is approached in the case of the metallic elements of low specific gravity by the widening of their lines, and in that of the elements of high sp. gr. by the increase of the number of lines. To test this, the absorption of sodium vapour in a 5 ft. tube was observed, and the D line was found to be no thicker than the same line produced by a test-tube full of the vapour, and the line was thicker than the D-line in the solar spectrum, in which spectrum all the short lines are reversed.—Father Secchi communicates a letter of A. T. Arcimis, detailing observations on the spectra of meteorites. The spectra of all seem to be continuous, but wanting in the violet, that colour of the spectrum predominating according to its colour to the naked eye. The sodium line was visible in the trail of some, as also were the lines of magnesium.—G. De Sisa gives a table of the solar spots observed at Palermo from June to September.—A table of the chromosphere, as seen during February and March last at Palermo, is added to this number.—E. Fergola contributes a lengthy paper on the position of the axis of rotation of the earth with respect to its axis of figure.

SOCIETIES AND ACADEMIES

LONDON

Linnean Society, Dec. 3.—Dr. G. J. Allman, F.R.S., president, in the chair.—Mr. Jas. Brodgen, Sir Edmund Buckley, Bart., M.P., Messrs. Jas. Cowherd, P. Duffy, C. C. Dupré, A. M. Ross, and J. W. Silver were severally elected Fellows of the Society.—Prof. Huxley read a paper On the classification of the animal kingdom, which will be found in another column. An interesting discussion followed, in which the President, Mr. Busk, Mr. H. G. Seeley, Mr. Stewart, Dr. Murie, and others took part.

Chemical Society, Dec. 3.—Mr. W. H. Perkins, F.R.S., in the chair.—A paper was read by Mr. S. Lupton On the formulae of the alums; the next was a notice On the colour of cupric chloride, by Mr. W. N. Hartley, who finds that the crystals of the salt when quite dry have a blue colour, and not a green, as they usually appear when slightly moist.—Papers were also read On the oxidation of the essential oils, Part II., by Mr. C. T. Kingzett; On the purification and boiling-point of methyl hexyl carbinol, by Mr. E. Neison; and a note on the boiling-point of methyl hexyl carbinol, by Dr. C. Schorlemmer, F.R.S.

Zoological Society, Dec. 1.—Dr. A. Günther, F.R.S., in the chair.—A letter was read from the Rev. S. J. Whitmee, of Samoa, stating that he had sent home for the Society some birds and a pair of the Samoan Bat, which had lately been described by Mr. Alston as *Pteropus whitmeei*. Particulars were given as to the habits of the latter.—A communication was read from Mr. Henry W. Piers, of Capetown, containing remarks on some specimens of *Gymnurites* in the museum at Capetown.—The Secretary announced that Col. R. S. Tickell, late of H.M. Indian Army, had presented to the Society's library a very finely illustrated MS. work, in seven small folio volumes, on the Ornithology of India.—A communication was read from Mr. J. Brazier, of Sydney, N.S.W., giving descriptions of eleven new species of terrestrial and marine shells from North-east Australia.—A paper, by Messrs. P. L. Sclater and O. Salvin, was read on birds collected by Mr. Whitely in Western Peru, being the eighth communication made by the authors on this subject.—A communication was read from Mr. H. Whitely, containing some further notes on Humming Birds collected by him in High Peru.—Mr. A. G. Butler read a paper in which he gave descriptions of three new species of homopterous insects from various parts of the world.—Mr. A. H. Garrod gave some further particulars on the mechanism of the "shew off" in the Bustards, and described the peculiar structure of the *frenum lingue* recently noticed in a young male of the Great Bustard.

Royal Horticultural Society, Dec. 2.—Scientific Committee.—Andrew Murray, F.L.S., in the chair.—Models were exhibited of the fruit of *Stephanotis floribunda*.—The Chairman made a communication on the Larch disease. It appeared to produce a local destruction and ulceration of the cambium layer; the trees affected by it also suffered from "piping," i.e., premature decay of the heart wood. The disease was now beginning to attack the Spruce and *Pinus excelsa*.—Prof. Thiselton Dyer exhibited part of the stem of a *Calamus* from Sikkim, in which the midrib of a sheathing leaf had produced an adventitious bud on its under side.—Dr. Denny raised a discussion on the possibility of superfecundation in plants.

General Meeting.—W. Lindsay, secretary, in the chair.—Prof. Thiselton Dyer commented on the investigations lately undertaken with respect to the potato disease. Prof. de Bary was disposed to believe that heterocercism occurred in the case of the potato parasite, that is to say, that part of its life was passed upon some other host besides the potato. Mouillefert had recently suggested that this might be clover, and Mr. Jenkins, secretary of the Royal Agricultural Society, supposed that both clover and straw might harbour the unknown stage of *Peronospora infestans*, and that this "would justify the prevailing opinion that farm-yard manure encourages the ravages of the potato disease, especially when applied in spring, because the spores of the fungus would be in the manure which had been used for litter."

Royal Microscopical Society, Dec. 2.—Chas. Brooke, F.R.S., president, in the chair.—A paper by Dr. Hudson, "On the discovery of some new male Rotifers," was read by the secretary, in the absence of the author. It described the male forms of *Lascinularia*, *Floscularia*, and *Notommata*, hitherto believed to be unisexual, and was illustrated by a number of very beautiful diagrams.—A paper by Dr. Schmidt, of New Orleans, upon the development of the small blood-vessels in the human embryo, was taken as read.

Victoria (Philosophical) Institute, Dec. 7.—The proceedings were commenced by the election of sixty-five new members and associates. It was stated that the total number of subscribing members was now 544.—Prof. H. Alleyne Nicholson, M.D., read his paper On the bearing of certain palaeontological facts upon the Darwinian theory of the Origin of Species, and on the general doctrine of Evolution. The paper, after discussing the nature of the views usually held as to Evolution, examined in detail the difficulties which Palaeontology offers to the acceptance of the Darwinian theory of the Origin of Species, and the arguments employed by Mr. Darwin to lessen or remove these difficulties.

EDINBURGH

Royal Society, Dec. 7.—Sir W. Thomson, president, in the chair.—The President delivered to Prof. Tait the Keith Prize for the biennial period (1871-1873), which had been awarded to him by the Council for a memoir published in the last part of the Transactions of the Society, entitled "First Approximation to a Thermo-Electric Diagram."—The President then delivered an address on "Stability of Sudden Motion."

PARIS

Geographical Society, Nov. 18.—President, M. Delesse.—M. Vinot announced that an interesting discovery had been made on the summit of the Puy de Dôme, of the ruins of an ancient monument which seems to date from the first century after the conquest of Gaul by the Romans.—Dr. Hamy, in the name of M. de la Porte, chief of the last expedition to Cambodia, read a note containing interesting details concerning the country which he has explored. With the exception of a few principal points, Cambodia is in great part still unexplored. A new map of the country by M. de la Porte and M. Moura, representing the French protectorate in Cambodia, will shortly be published. M. de la Porte believes that many archaeological discoveries of the highest importance are yet to be made in Cambodia, and he expects considerable results from the exploration about to be made by M. Harmand in the regions to the west of the French colony.

Academy of Sciences, Nov. 30.—M. Frémy in the chair.—The following papers were read:—Note on two properties of the ballistic curve, whatever may be the exponent of the power of the velocity to which the resistance of the medium is proportional, by M. H. Résal.—On the capillary theory according to the Liliaceæ, by M. A. Trécul.—On the distribution of the bands in primary spectra, by M. G. Salet.—On the mechanism of the intra-stomachal solution of the gastric concretions of crabs,

by M. S. Chantran.—M. Dumas called the attention of the Academy to the recent appearance of Phylloxera in Pregny, near Geneva, and M. Pasteur made some observations thereon. Letters from M. Schnetzler and M. Max Cornu to M. Dumas on the subject of Phylloxera were also read.—Letter from Mme. Ve Bouchard-Hazard to the President, offering to the Academy documents relating to a great number of its members; documents composing the collection made by J. B. Huzard.—On the heat disengaged by the combination of hydrogen with the metals, by M. J. Moutier. The author has shown that the formula deduced by Clausius from Carnot's theorem for changes of state is applicable to dissociation. The formula is—

$$L = AT(v - v') \frac{dp}{dP}$$

L representing the heat of combination of two bodies at the absolute temperature T under the pressure p , equal to the tension of dissociation at that temperature, v the specific volume of the dissociated elements, and v' the specific volume of the compound under the same conditions of temperature and pressure. A is the thermal equivalent of work. From this formula the value of L can be found when we have tables of the tensions of dissociation of the compound at different temperatures.—The recent experiments of MM. Troost and Hautefeuille have made known these tensions for combinations of hydrogen with palladium, potassium, and sodium, at different temperatures.—Orbit, period of revolution, and mass of the double star $70\,\rho$ Ophiucus, by M. C. Flammarion.—Observations of the zodiacal light at Toulouse, the 16th, 21st, and 23rd of September; 9th, 10th, and 11th Oct.; 10th and 12th of November, 1874, by M. Gruly.—Laws of double internal reflection in birefringent uni-axial crystals, by M. Abria.—Researches on the decomposition of certain salts by water, by M. A. Ditte. In this third note the author has examined the double sulphate of potassium and calcium.—On the additive product of propylene and hypochlorous acid, by M. L. Henry.—Employment of gas-retort carbon in the distillation of sulphuric acid, by M. F. M. Raoult.—Influence of boiling distilled water on Fehling's solution, by MM. E. Boivin and D. Loiseau.—Iron in the organism, by M. P. Picard.—On experimental septicemia, by M. V. Feltz.—On the birth and evolution of bacteria in organic tissues sheltered from the air, by M. A. Servel.—Note on a stony concretion, by Dr. T. L. Phipson.—On some passages in "Stan. Bell," from which it may be concluded that *Amaranthus blitum* is cultivated in Circassia for the nitre which it contains; extract from a letter from M. Brosset.—Note on the lowering and natural elevation of lakes, by M. Dausse.—The compound flute during the reindeer period, by M. Ed. Piette.

BOOKS AND PAMPHLETS RECEIVED

BRITISH.—The Straits of Malacca, Indo-China, and China: J. Thompson, F.R.G.S. (Sampson Low).—Travels in South America: Paul Marcay (Blackie and Son).—Supplement to Harvesting Ants and Trapdoor Spiders: J. Traherne Moggridge, F.L.S., F.Z.S., and Rev. O. Pickard-Cambridge (L. Reeve and Co.)—English Men of Science; their Nature and Culture: Francis Galton, F.R.S. (Macmillan and Co.).—Selections from Berkeley; Alex. Campbell Fraser, LL.D. (Clarendon Press).—Elements of Animal Physiology: John Angell (Wm. Collins).—Elements of Magnetism and Electricity: John Angell (Wm. Collins).—Principles of Metal Mining: J. H. Collins, F.G.S. (Wm. Collins).—Evolution and the Origin of Life: H. Charlton Bastian, M.A., M.D., F.R.S. (Macmillan and Co.).—The Forces which carry on the Circulation of the Blood: Andrew Buchanan, M.D. (J. and A. Churchill).

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